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| 10/017,572 | 10/23/2001 | Carl D. Burch | 10019928-1 | 1171 |

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| EXAMINER |
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RUTTEN, JAMES D

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| ART UNIT | PAPER NUMBER |
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2192

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/017,572 | Applicant(s) BURCH, CARL D. | |
| | Examiner J. Derek Rutten | Art Unit 2192 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27 is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Acknowledgement is made of Applicant's amendment dated 2 December 2004, responding to the 13 September 2004 Office action provided in the rejection of claims 1-20, wherein no claims have been amended, no claims have been canceled, and new claims 21-27 have been added. Claims 1-27 remain pending in the application and have been fully considered by the examiner.
2. The terminal disclaimer filed on 2 December 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 6,308,320 to Burch has been reviewed and is accepted. The terminal disclaimer has been recorded.
3. The declaration under 37 CFR 1.132 filed 2 December 2004 is sufficient to overcome the rejection of claims 1-20 based upon 35 U.S.C. 102(a) over "SmartBuild High-Level Design, Version 1.0" by Burch and Nystrom (hereinafter "Burch"). It is noted that the term "publication" is used in the declaration to refer to the Burch document. The word "publication" is typically used to refer to a document that is made publicly available. In contrast, the declaration itself shows that the Burch document was not a publicly available "publication". As such, the term has been interpreted as merely referring to a "document," and thus is not available as prior art under 35 U.S.C. 102(a).

Claim Objections

4. Claim 22 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The comparison of current and prior hash values is achieved in claim 1, where comparison is inherent in determining if the current hash value is or is not equal to the prior hash value. The current hash value for a block of intermediate code is generated in claim 21.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6-9, 11-14, 16-19, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art of record U.S. Patent 5680622 to Even (hereinafter "Even") in view of prior art of record U.S. Patent 5805899 to Evans et al. (hereinafter "Evans").

In regard to claim 1, Even discloses:

A method for optimizing compilation time of a program (See column 18 lines 6-51), *the program including at least one block of code, said method comprising steps of:*

generating a current hash value for a block of code in the program; See column 3

lines 39-40:

The parse tree is processed by the system by the following method (or alternatively generated on-the-fly using the following method)

skipping optimization of the block of code if the current hash value equals a prior

hash value; See column 3 lines 55-56:

When two identical trees are encountered in a parse, they will hash to the same address and will be stored only once.

storing the current hash value ... if the hash value is not equal to the prior hash

value for the block of code. See column 3 lines 45-49:

Once this terminal node has been processed, the system proceeds up the tree and takes the next left-most node, again processing it in the manner just described, and so on. In this manner, the parent node of a given node will be processed only after all the children of the given node have first been processed.

As provided in the summary, Even discloses a method for reducing redundant compilation by storing a hash value produced from a data object, in this case a parse tree representing a block of code, and skipping further processing of that object if the hash value already exists. Even does not expressly teach storing the hash in the block of code.

However, in an analogous environment, Evans teaches the storage of a hash value in the code itself. See Figure 6 in connection with column 8 line 66 – column 9 line 4:

FIG. 6 shows a format of version definition section 506 of versioned shared object 114 ... The section includes a section header 602 ... [and] a hash value 614 ...

Evans' hash value is generated from the name of a version of the object, and is analogous to Even's hash value since they are both describing a version of an object. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Evans' storage of hash values with Even's hash dependent compilation. One of ordinary

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skill would have been motivated to determine whether a particular version of a shared object is present during linking (Evans column 1 lines 41-43) and upgrade only those parts of a system that are necessary to accommodate a change (Evans column 1 lines 57-59).

In regard to claim 2, the above rejection of claim 1 is incorporated. Even further discloses: *allocating area for the generated hash value*. See column 3 lines 39-40.

In regard to claim 3, the above rejection of claim 1 is incorporated. Even further discloses: *setting a scope of the least one block of code*. See column 3 lines 42-52.

In regard to claim 4, the above rejection of claim 1 is incorporated. Even further discloses: *using a parameter in hashing function to generate the hash value, wherein the parameter is selected from at least one of the group of a code stream, and a data stream*. See column 4 lines 19-21.

In regard to claim 6, Even discloses:

A system for optimizing compilation time of a program (See figure 1C). All further limitations have been addressed in the above rejection of claim 1.

In regard to claim 7-9, the above rejection of claim 6 is incorporated. All further limitations have been addressed in the above rejections of claims 2-4, respectively.

In regard to claim 11, Even discloses:

A computer readable medium for optimizing compilation time of a program (see column 5 lines 43-55). All further limitations have been addressed in the above rejection of claim 1.

In regard to claim 12-14, the above rejection of claim 11 is incorporated. All further limitations have been addressed in the above rejections of claims 2-4, respectively.

In regard to claim 16, Even discloses:

a compiler that generates the least one block of code from the program (column 3 lines 31-35). All further limitations have been addressed in the above rejection of claim 6.

In regard to claim 17-19, the above rejection of claim 16 is incorporated. All further limitations have been addressed in the above rejections of claims 7-9, respectively.

In regard to claim 21, the above rejection of claim 1 is incorporated. Even further discloses: *generating the current hash value for a block of intermediate code* (see column 11 lines 17-20). Evans teaches: *wherein the prior hash value is associated with*

preexisting object code (column 2 lines 6-17). All further limitations have been addressed in the above rejection of claim 1.

In regard to claim 22, the above rejection of claim 21 is incorporated. All further limitations have been addressed in the above rejection of claims 1 and 21.

In regard to claim 23, the above rejection of claim 22 is incorporated. Even further discloses generation of object files and linking object files to form a program (column 7 lines 15-17 and column 8 lines 26-49). All further limitations have been addressed in the above rejection of claim 1.

7. Claims 5, 10, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Even and Evans as applied to claims 1-4, 6-9, 11-14, 16-19, and 21-23 above, and further in view of U.S. Patent 6,308,323 to Douniwa (hereinafter “Douniwa”).

In regard to claim 5, the above rejection of claim 1 is incorporated. Even further discloses an interface for displaying results and other useful information (column 5 line 65 – column 6 line 1). Even does not expressly disclose generating a notice. However, in an analogous environment, Douniwa teaches the display of results of a computation (column 3 lines 59-63). All further limitations have been addressed in the above rejection of claim 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Douniwa’s teaching of results display with Even’s

hash value comparisons. One of ordinary skill would have been motivated to display the results of a computation in order to provide details to assist in system optimization.

In regard to claims 10, 15, and 20, the above rejections of claims 6, 11, and 16 are respectively incorporated. All further limitations have been addressed in the above rejection of claim 5.

Allowable Subject Matter

8. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 25-27 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The cited prior art, taken alone or in combination, fails to teach a prior hash value associated with preexisting object code and corresponding to a block of intermediate code, a current hash value for the block of intermediate code being compared with the prior hash value, and the preexisting object code being reused when the current hash value matches the prior hash value.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571) 272-3703. The examiner can normally be reached on T-F 6:00 - 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr



TUAN DAM
SUPERVISORY PATENT EXAMINER